

ABSTRACT OF THE DISCLOSURE

In an initial synchronization method in a DS-CDMA inter-base station asynchronous cellular scheme of transmitting a spreading code sequence constituted by a long code unique to each cell and a short code corresponding to each communication channel, an identification code (common identification code) common to each cell in a predetermined period (slot), and a long code group identification short code corresponding to the long code in each cell upon multiplexing the codes, a first stage includes detecting correlation power values between the common identification code and a received signal by using a correlator, and detecting a long code timing from a corresponding base station on the basis of a maximum value of the correlation power values, and performing threshold determination by comparing the maximum correlation power value with an arbitrary threshold, and performing processing again from the first stage if the maximum correlation power value does not exceed the threshold, a second stage includes detecting a correlation value between the received signal and each long code group identification short code, and obtaining a sum of the correlation values corresponding to the number of long code group identification short codes in each slot

according to a transmission pattern of long code group identification short codes in each predetermined long code group, setting a group having a maximum correlation sum as a group to which a long code of the received signal belongs, detecting a slot in which a head of the pattern is obtained as a start slot of a frame, and comparing an arbitrarily set threshold with the maximum correlation sum and performing processing again from the first stage if the maximum correlation sum does not exceed the threshold, and a third step includes sequentially generating replica codes of long codes and short codes from long code candidates included in the long code group identified in the second stage, performing correlation detection for the obtained synchronization timing, performing long code correlation detection to check whether the correlation detection value exceeds an arbitrary threshold, returning to the first stage if none of correlation detection values of all long codes exceeds the threshold, and determining a long code exceeding the threshold as a long code of a target cell, performing synchronization detection by using a frame sync signal, completing initial synchronization if synchronization is detected, and returning to the first state if synchronization is not detected.